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TOBACCO WILDFIRE

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Massachusetts Agricultural Experiment Station

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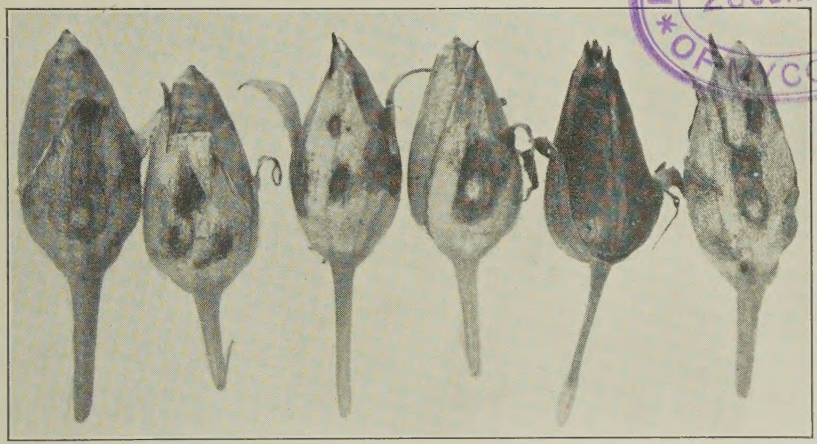

FIG. 1.—Wildfire on seed pod and calyx lobes. (Courtesy of F. A. Wolf.)

Tobacco wildfire is a leaf disease of tobacco that has caused heavy crop losses in some southern tobacco-growing sections. It was found in Massachusetts in 1920, and has probably been in our fields for two or more years. Although it is not yet widespread, prompt measures for eradication must be taken if Massachusetts growers are to be safe from possible crop disasters

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TOBACCO WILDFIRE.

BY G. H. CHAPMAN.

Wildfire is the name given to a leaf disease of tobacco which has caused much damage in the southern tobacco-growing sections, particularly in North Carolina. This leaf disease was found in Massachusetts and Connecticut in 1920. While not as yet widely distributed, eventually it may cause as large losses in this section as it does in the south in some seasons. Prompt measures should be taken by growers to prevent its spread and to eradicate it when found. It is not known how the disease was introduced here nor how long it has been present in our fields. In all probability it has been present for at least two years, and possibly more.

In North Carolina in seasons favoring the disease, wildfire causes practically total crop loss in some instances. In Massachusetts the losses have so far been comparatively low, at least in the cases which have come to our attention. In Connecticut the disease is apparently more widely spread than in Massachusetts.

Appearance.

Wildfire may appear at any time, but as observed in Massachusetts in 1920 was most severe in June and August. The severity of an attack is largely dependent on weather conditions. Wolf[1] describes the disease as it appears typically, as follows: —

> The first sign of the disease consists of the presence on the leaves of small, yellow, circular spots with brown centers about the size of a pin point. Within two or three days these brown centers will have enlarged to spots one-fourth to one-half inch across, with a border of water-soaked appearance. The tissue surrounding each spot is yellowish or pale green in color. Various factors, including the age of the plant, weather conditions and mineral nutrition, modify the amount of yellowing or chlorosis of the affected leaves. The bud leaves of plants in the seed bed may be pale green, erect and slow in developing on plants whose older leaves are diseased. Such plants may perish in the plant bed, or may not survive transplanting.

[1] Wolf and Moss. Diseases of Flue-cured Tobacco. North Carolina Department of Agriculture, Bulletin No. 263, p. 25, 1919.

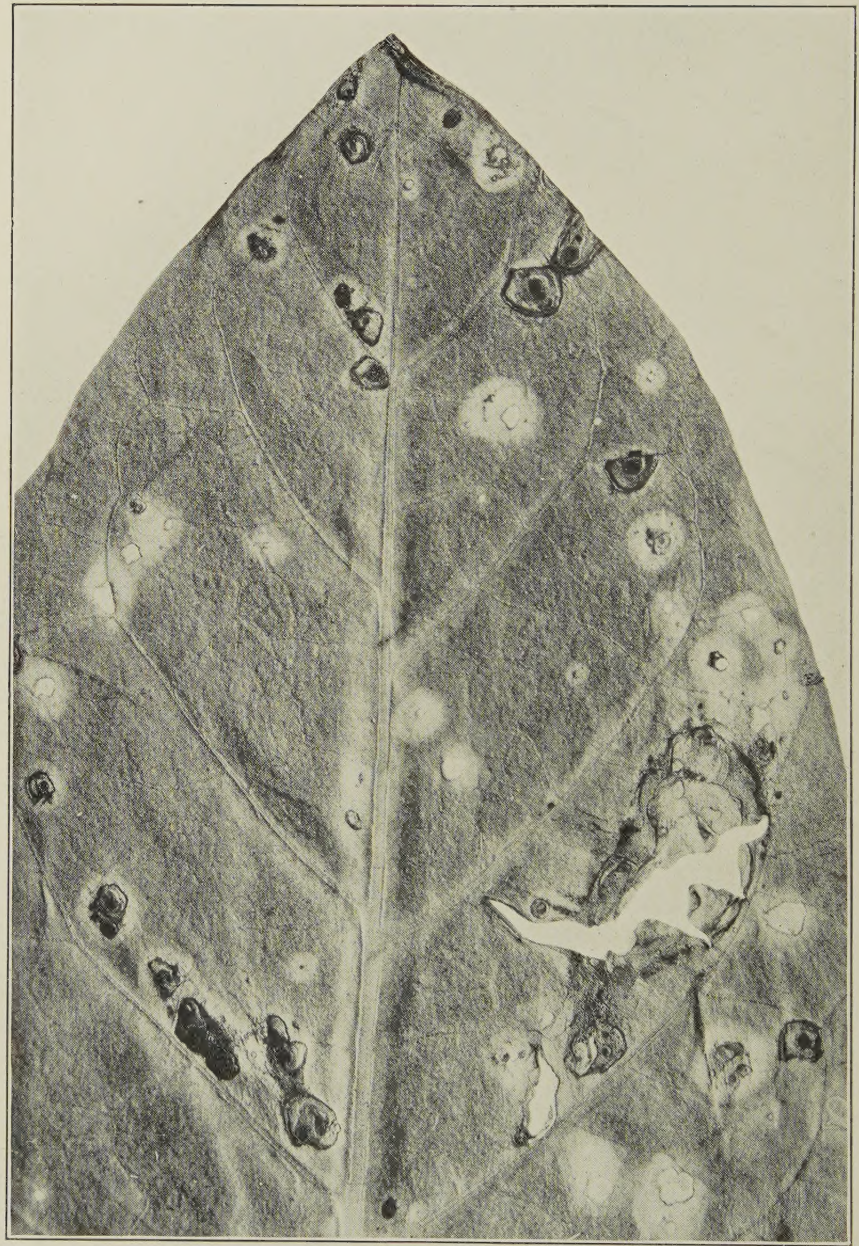

FIG. 2.—Young and old spots of tobacco wildfire. Note the light halo around the younger spots and the darker appearance of the older ones. (Four-fifths natural size.)

Sometimes the diseased areas under field conditions are not uniformly brown, but consist of several concentric rings of different shades of brown, with the lightest one in the center. Not uncommonly, too, the spots are so abundant that they fuse, making large irregular areas. These dead spots may either dry in place or rot out so that the leaves present a ragged appearance.

The disease has been found to occur on the flowers and on the seed pods. It forms small, dark, irregular spots on the corolla and calyx, and prominent brown spots on the pods.

In Massachusetts the water-soaked appearance has been observed only in the seed bed, and no extreme cases of the rotting out of the spots in the field have come to our attention. Under more favorable conditions, however, these characteristics might easily develop.

Cause.

Some growers are of the opinion that wildfire may be caused by rainy weather, insects, etc., but these factors are secondary. It has been established by Wolf that the disease is caused by a bacterium (*Bacterium tabacum*). This same organism has been found in spotted leaves from Massachusetts and Connecticut, thus proving that the spotting was identical with that which was so disastrous in North Carolina in 1917.

Transmission.

Wildfire spreads very rapidly in periods of rainy weather accompanied by cool nights and general low temperatures. Apparently when normal temperatures and moisture conditions exist the disease does not spread very rapidly.

Whether the wildfire organism can be carried by any fertilizer material is still an open question. The evidence to date indicates that it *cannot* be so carried. The seed pods are often infected, and it has been proved that seed from such pods may be contaminated. It has also been found that the organism is carried in the soil of the seed bed or the field.

Wildfire may also be carried from plant to plant and from bed to bed by the workmen in weeding or other handling of the seedlings. Flea beetle is also said to be active in carrying the infection from plant to plant.

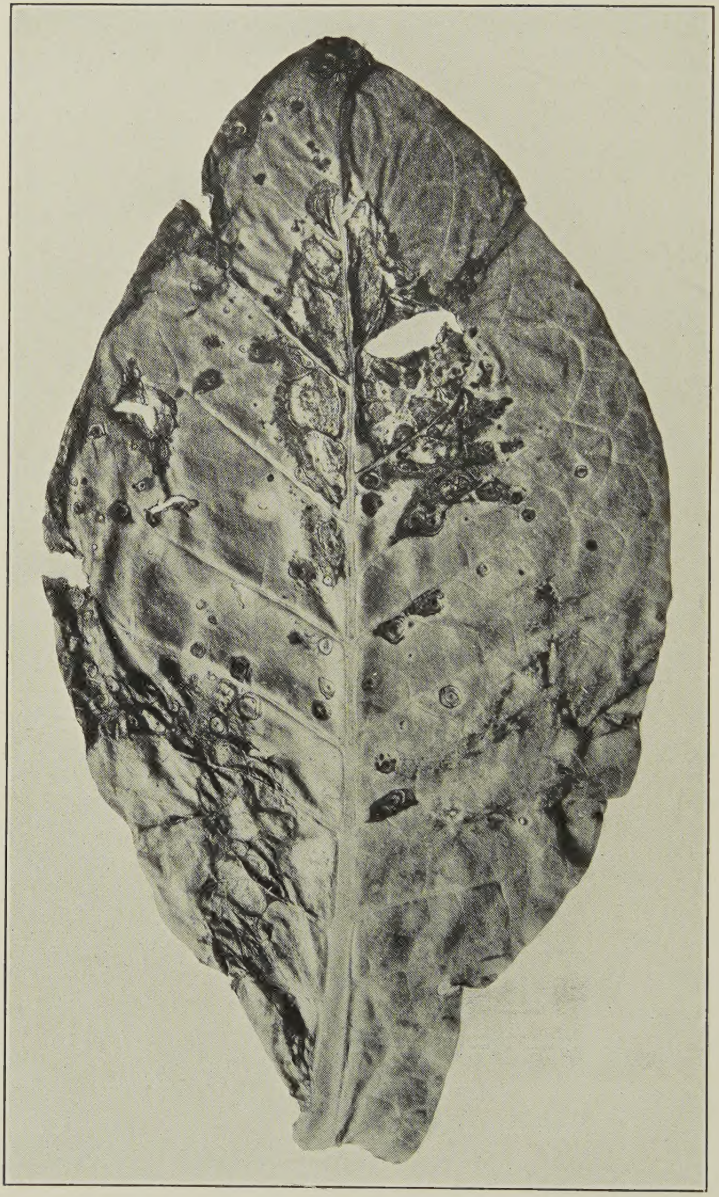

FIG. 3. — Old wildfire spots. Note the concentric zonation. (Two-fifths natural size.)

Control Measures.

It has been found that wildfire originates in the seed bed; therefore the first attempt at control should be made there. The use of sanitary measures will to a great extent assist in the eradication of the disease, and the production of healthy plants. The following precautions should be strictly observed: —

1. Where the disease has been noted, either in the beds or in the field, thoroughly sterilize the old beds or use new beds. Wash the plank and sash used on the beds with a solution of formaldehyde and water (1–50) in cases where wildfire appeared the previous season.

2. Use seed from healthy plants only; seed from diseased plants may carry the infection. If necessary purchase seed from farms known to be free from the trouble.

3. Use plants grown in beds on the farm. There is great danger of field infection through the use of plants purchased from other growers. Do not in any case purchase plants except as a last resort.

4. If wildfire is found in the seed beds, destroy the plants.

The results of investigations to date on field control and eradication by spraying indicate that there is little to be expected from such practices.

For further information regarding this disease address the Department of Botany, Massachusetts Agricultural Experiment Station, Amherst, Mass.